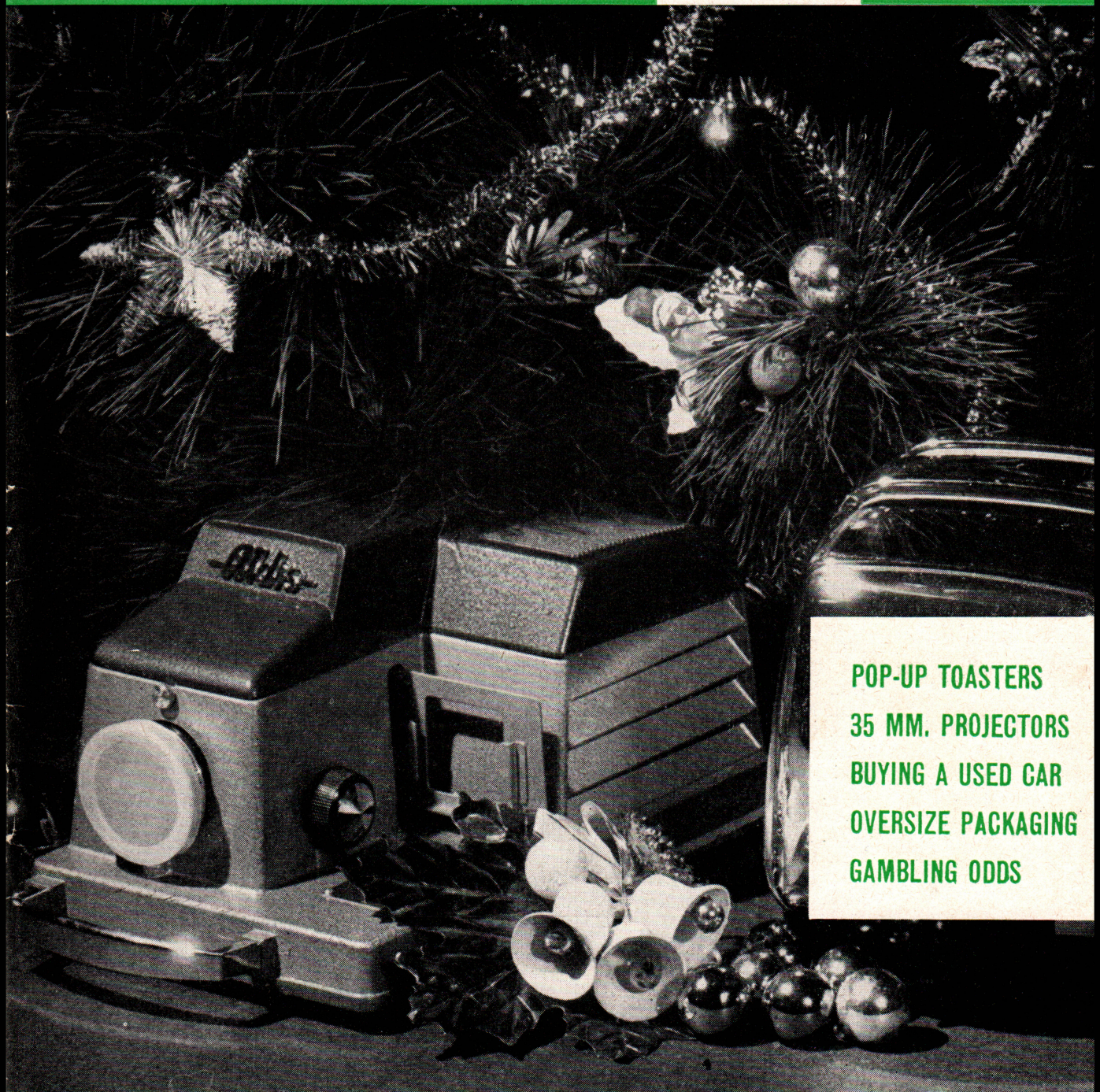
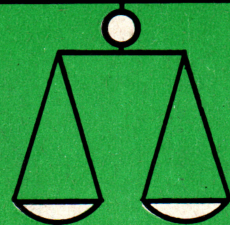


CHOICE

1960
No. 4
DECEMBER



POP-UP TOASTERS
35 MM. PROJECTORS
BUYING A USED CAR
OVERSIZE PACKAGING
GAMBLING ODDS

GENERAL NOTICES

The Australasian Consumers' Association Ltd. is a non-political, non-profit-making organization whose principal object is to test consumer goods and help its members to get the best possible value for their money. It publishes the results of its tests in *Choice*, which is available only to members.

The Australasian Consumers' Association wishes to state that wherever there is reference in this magazine to tests or comments on any article or articles these references relate only to the article or articles examined by the Association and *not* to any other article of the same or similar description.

The prices given for the goods described in *Choice* are the prices paid by ACA for the goods at the time of purchase. The prices of goods of such description may vary from place to place in Australia and from time to time.

MEMBERSHIP

There are two kinds of membership:

1. ORDINARY MEMBERS, who are entitled to receive copies of the publications of the Association and also to attend and vote at General Meetings.

Such members must not be engaged in the manufacture or sale of goods or services of the kind which the Association will examine, and hence persons who wish to become Ordinary Members are required to submit an application for approval of the Council. The number of Ordinary Members is limited, and it is considered that future applicants should be taking active interest in ACA in the various States.

2. ASSOCIATE MEMBERS (**the usual form of membership.**)

Anyone may become an Associate Member on payment of an Annual Subscription of £1, which entitles the member to the magazine and other publications of the Association but not the right to attend or vote at General Meetings.

Australasian Consumers' Association Ltd.

(Incorporated in New South Wales)

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ACA'S FIRST YEAR

EDITORIAL

The issue of our fourth and final number of *Choice* for 1960 seems the right moment for a brief survey of the very satisfactory progress ACA has made during its first year of life. Most important of all has been the remarkable growth of membership, from a mere 500 at the time of our first issue in April to more than 7,500 at the end of November. This has only been achieved by the great enthusiasm and co-operation of our members in all parts of the Commonwealth, and the Council and Branch Committees would like to thank most gratefully all those who have supported and encouraged them during the months of ACA's infancy.

Now we have a headquarters and the nucleus of a permanent staff; we also have most ambitious plans, to be put into operation progressively as our income from memberships permits the necessary expenditure. The interest and enthusiasm *Choice* has provoked everywhere is proof of the urgent need for a consumer organization in Australia. If we can continue

to introduce more and more people to *Choice*, we should have no difficulty in getting all the members we need. The more new subscriptions we gain in 1961, the more service we can give to all members of ACA. So please do not relax your efforts to interest every possible person in our association. We are undertaking considerable publicity through all available media, but ultimately it is the efforts of individual members that bring the fullest results.

Membership Renewals

As well as driving ahead for new members, we must also maintain our existing membership. So please do not forget that your annual subscription expires on 31st December. It would help us to have your subscription for 1961 as early as possible, so that we can put it to work immediately for the good of the whole association.

In this issue of *Choice* you will find a form for renewal of your membership. We hope that you will return this as quickly as possible so that we

can estimate the number of members who should receive our first issue for 1961, which we hope to produce during February. In the past we have said that it is our intention to publish six issues of *Choice* each year. At the present moment this is impossible because we must have over 10,000 members before we can do this. On your renewal form you will find a voting slip and we will be very grateful if you would fill this in to let us know whether you would prefer four bigger issues of *Choice* each year or six issues about the present size.

Christmas Gift Subscriptions

A large number of members have already availed themselves of our Christmas gift scheme to give a year's subscription to *Choice* as a seasonal present to their friends. A photograph of the card your friends will receive is included elsewhere in this issue. We will be mailing these cards during the first half of December and we hope that they will give pleasure and also act as ambassadors for ACA. It is still not too late to send us gift subscription forms, so we are including one in each copy of this issue. Please try to get them to us as soon as possible, so that we have time to mail the cards to your friends before the Christmas holiday.

Binders for Choice

Some of those who have sent remittances to us for their *Choice* binders may be disappointed that they have not yet received them. Unfortunately the attractive green plastic material we chose for the covering of the binder had to be specially ordered and took some time to arrive. This meant that the manufacturer could not start to make them up until the Christmas rush was in full flood. But we hope they will be ready in mid-December, or early January at the latest. As soon as they are available they will be mailed direct to all those who have ordered them.

Questionnaires

The majority of our members have returned the blue questionnaire forms we sent out in *Choice* No. 2 and we have much appreciated the conscientious way in which you have filled them in. We have already completed a preliminary breakdown of the results, which are most interesting. In our first issue of *Choice* for 1961 we will discuss members' preferences as regards

testing and will also indicate some of our plans for extending ACA's service to members in the future.

Value for Money

ACA's policy is to tell its members how to get the best value for money. Early in our plans for this year we decided our readers would be interested in electrical domestic gadgets and we planned to test electric frying pans, steam-and-dry irons, and pop-up toasters. It has happened in every case that products of the same make have stood out as the best value for money in the opinion of ACA's testers. These products have not always been the cheapest on the market, but our policy has not been to find the cheapest good article but the *best value for money*.

We would like to take this opportunity to repeat that we have no connection with any manufacturer, advertiser or distributor of consumer goods or services. The fact that a particular make has come out best in three sets of tests is simply testimony to the fact that these products were considered to be the best value for money and nothing else.

"Choice" Index

Many members have inquired whether we are planning to index *Choice* periodically. This matter has been considered and it is our intention to produce a comprehensive index to all previous *Choices* in the final issue for 1961.

Next Issue of "Choice"

ACA plans to produce the first number of *Choice* for 1961 in February; in this way new members and gift subscription members will quickly be put in touch with the activities of the Association.

ACA Buying Panel

A panel is being formed to plan and carry out the buying of goods for ACA's future tests. It is intended in due course to extend this panel to all States, so that any variations in the quality and price of products can be noted.

Sun-glasses—A correction

We have been informed by a firm of spectacle makers and also by several members of ACA that the price we were charged for the Calobar D sun-glasses reported on in *Choice* 2 was un-

necessarily high. We are told that in fact it is possible to obtain good quality frames fitted with Calobar D optically ground and polished lenses for approximately £3. Members are advised to compare the price charged by several opticians before buying glasses of this type.

User Tests

Members may be interested to have an interim report on the user tests which are being carried out on a number of appliances reported on in earlier issues of *Choice*. The electric frypans have been in the hands of various competent housewives since the end of August. They will be returned to ACA and reported on early in 1961. One frypan (which shall be nameless at this stage) shortcircuited the third time it was used and fused the entire power supply of the unfortunate tester's home.

The steam-and-dry irons are also out for a six-month user test. They are being passed on in rotation every month, so that each tester will be able to report on the whole range of irons.

The statistical plan for the user test on children's shoes is almost completed and will be put into operation early in the new year. This will call for several hundreds of volunteer

families. We will be giving details of this project in our February 1961 issue.

Our Retiring Honorary Secretary

You may have noticed that Mrs. I. M. Sheahan is now named as Public Relations Director in the list of Council Members inside the front cover. Having carried the very heavy burden of the association's secretarial work on a purely voluntary basis during the formative period, she has now been able to hand over routine detail to the association's first salaried staff members.

At the October Council Meeting a vote of thanks to Mrs. Sheahan for her magnificent and unstinting work was carried unanimously and with acclaim. It was then proposed that she be asked to turn her remarkable organizing abilities to the extension of the association's activities, particularly in the States where branches have not yet been established. Mrs. Sheahan gracefully accepted this new appointment, to the evident satisfaction of the Council.

Finally, a word about our cover picture. It is a real Christmas tree and all the objects with it have been tested and reported on in this issue of *Choice*. So, in a way, they are ACA's Christmas presents to its members.

A MERRY CHRISTMAS AND A PROSPEROUS NEW YEAR TO YOU ALL.

More Members' Opinions about "Choice" . . .

"Very interesting articles. Wish you every success."—Mrs. F. R. C., Box Hill, Vic.

"Stick to tests of things that are used in most homes."—T.H.M.L., Kingston, A.C.T.

"The articles *must* be technical to prove their points."—W.J.P., Chatswood, N.S.W.

"Just give sufficient technical detail to back up your recommendations."—W.C.C., E. Malvern, Vic.

"Please don't cut down on technical articles."—Mrs. J. M., Ashfield, N.S.W.

"*Choice* settles many arguments."—F. McT., Malvern, Vic.

"Try to concentrate on local articles."—Dr. J. McK., Como, W.A.

"Set a page aside for comments on untrue or misleading advertising."—N.K.H., Blair Athol, Qld.

"Articles must clearly outline respective merits of various brands in any goods tested."

D.H.B., New Town, Tas.

"Would like to see a more definite 'yes' or 'no' to findings."—R.M.W., Albany, W.A.

"Hope you get on to washing machines, refrigerators, stoves, furniture, etc., when membership permits."—A.W.W., Nunawading, Vic.

"Photographs should be excluded at this stage. Money is better spent on buying articles for testing."—M.W., E. Melbourne, Vic.

"I wish I had had all the help in selection your publication offers, when we were buying as young people."—Mrs. E.K.G., Broken Hill, N.S.W.

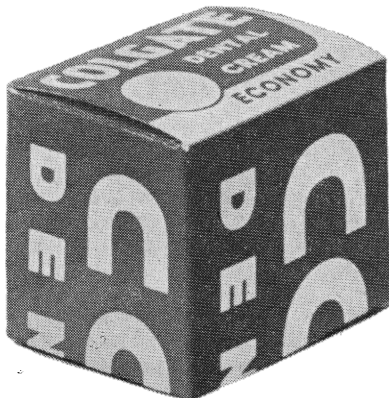
DON'T JUDGE BY APPEARANCES

The packing of consumer goods is a very important feature in sales promotion. The quality of packing and expense which is entailed is correlated with the type of product therein, from the luxury packing of the cosmetic trade at one extreme to the utilitarian printed band around a new tyre on the other. In fact one might almost conclude that the essential need for the product was inversely related to the quality of the packing.

ACA decided to have a look at the packing of materials in tubes. Quite a number of products come to us in tube-packs today: toothpaste; medicinal creams; various cements and glues, to name only three. The toothpastes sport the most pretentious packs, the glues and adhesives the least. These packs are not only pretentious in printing and style but are frequently grossly inflated in size.

The picture illustrating this article shows the sort of thing ACA found. This shows a Colgate's economy toothpaste pack which measures 52 x 38 x 170 millimetres and has a volume of 336 millilitres. The actual volume of the toothpaste tube, not including the

since it would be quite impossible to pack this toothpaste into the carton on the left-hand side whilst still retaining a tube-pack. However,



screw cap, is 84 mls., so that the product actually occupies a volume of 25% of the package even when we include its immediate covering, the collapsible tube. Of course, our photograph tends to exaggerate the position somewhat



we shall see from the table below that a manufacturer can do better than 25% of the total pack with tube products. The table shows first the size of a number of packs of toothpaste, the volume of the carton, and then the volume which

ACA found for the tube by immersing it in a measuring cylinder filled with water up to the level of the screw cap. The final column gives the ratio of the tube volume to that of the carton in the form of a percentage.

The first six products are popular toothpastes and you will see that the percentage of the pack occupied by the product ranges from 25 to 37.5%. The seventh product—Brylcreem—again comes into the toilet category and this pack contained only 26.5% of the volume as the product. Products Nos. 8 and 9 are two pharmaceutical products in the ethical field and here the volume is 36.5 and 38% respectively. Product No. 10 is another toothpaste, but hardly one of the best-sellers, and this occupies 42% of the packet. Finally, product No. 11 is a common household cement and again 39% of the packet is the product.

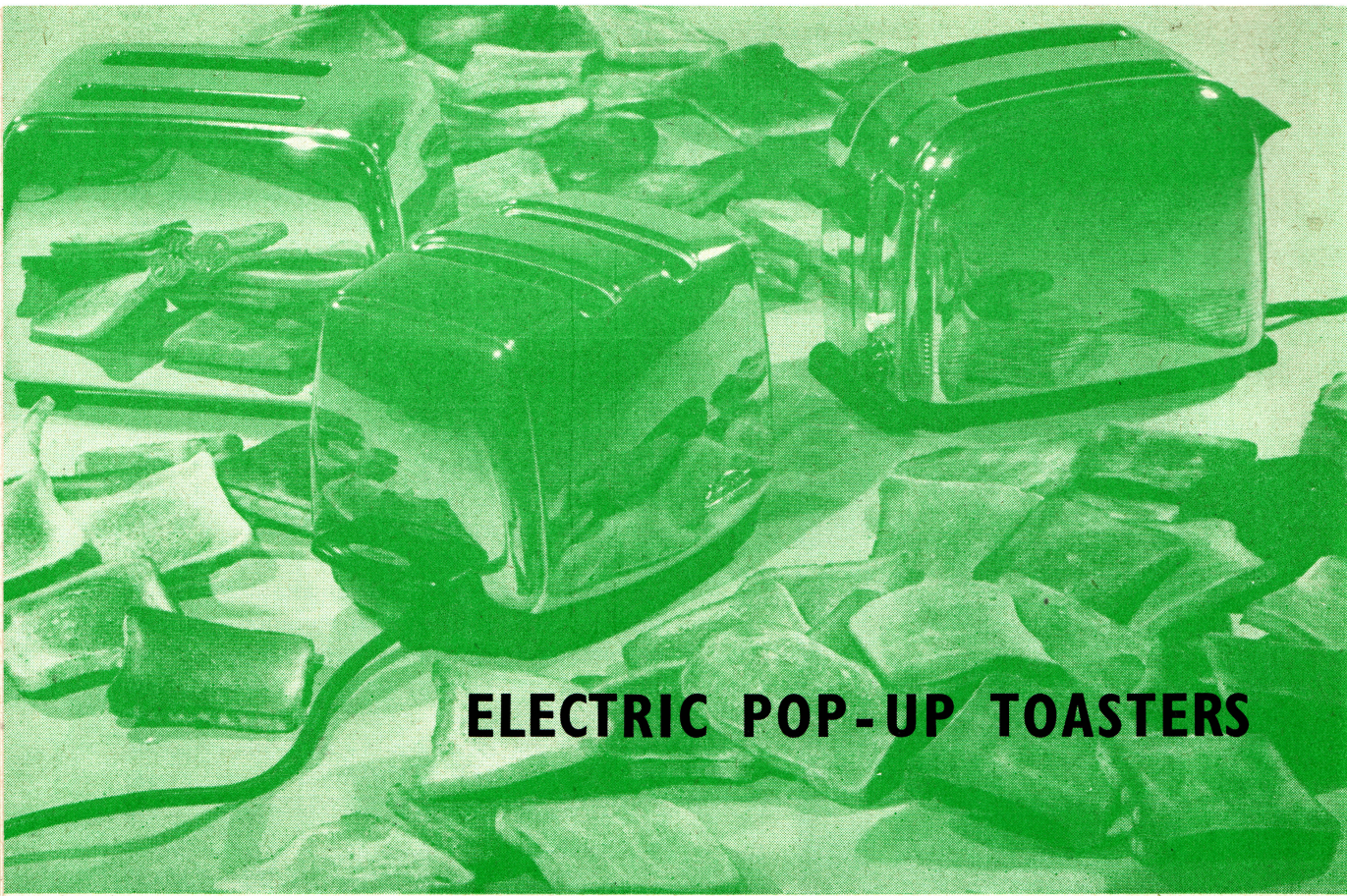
The answer to all this is that it is clearly possible to pack a tube product in a packet so

that at least 42% of the packet is occupied by the product, and yet with the majority of the packs in our table, two-thirds of the package is empty. The housewife carries this amount of space in her shopping basket; it is transported all over Australia from warehouse to retail stores in trucks, vans, trains, and planes, all of which must be paid for—and paid for by the consumer.

It may be that the packets are badly designed, it may be that there was a miscalculation, or it may be that the intention is to catch the eye and imply something different from the true facts of the case. Whichever is the reason, ACA would like to see an efficient packing of tubes in the most compact manner possible at the minimum cost to the consumer, at the same time retaining attractive appearance and this, as our table demonstrates, is by no means impossible.

VOLUME OF CARTONS OCCUPIED BY TUBE-PACKED PRODUCTS

<i>Brand</i>	<i>Size</i>	<i>Volume of Carton</i>	<i>Volume of Tube</i>	<i>Volume of Tube divided by Vol. of Ctn.</i>
PEPSODENT ..		<i>ml.</i>	<i>ml.</i>	<i>%</i>
	Medium	109	28	25.5
	Giant	224	58	26.0
	Economy	314	86	27.5
COLGATE	Medium	107	28	26.0
	Giant	214	58	27.0
	Economy	336	84	25.0
	Family	390	112	29.0
IPANA	Medium	104	30	29.0
	Giant	186	58	31.0
	Economy	298	90	30.0
	Family	357	112	31.5
KOLYNOS	Large	187	70	37.5
	Giant	314	91	29.0
NYAL	Medium	193	50	26.0
	Economy	302	95	31.5
S.R.	Medium	101	29	28.5
	Giant	216	56	26.0
BRYLCREEM		340	90	26.5
D.H.A. Zinc Cream	2 oz.	171	62	36.5
P.D. Benadryl Cream	2 oz.	183	70	38.0
P.D. Euthymol	Small	127	48	38.0
	Large	205	86	42.0
BOSTIC Cement		393	152	39.0

A black and white photograph showing three vintage electric pop-up toasters. One toaster is in the foreground, slightly to the left, with a slice of toast popping out. Another is to its right, and a third is in the background. The toasters are surrounded by several slices of toast, some of which are slightly charred. The background is a plain, light-colored surface.

ELECTRIC POP-UP TOASTERS

Following upon ACA's purchases of frying pans and steam irons, the pop-up toaster came naturally to mind for the next project and since these make handsome Christmas presents, it was decided to survey them for this issue.

Electric toasters are common enough gadgets in the home, but the pop-up variety is about four or five times as expensive as the ordinary type, so that most buyers would need to be considerably more thoughtful before deciding on such a purchase.

Whereas there are very many of the ordinary toasters, ACA could only find three of the pop-up type — HOTPOINT, MORPHY-RICHARDS, and SUNBEAM.

Before considering the tests ACA made with these, it might be worth saying a few words about how they work.

The usual mechanism comprises a spring-loaded rest, on which the bread is placed, held down by a catch which is later released by a timing device capable of adjustment according

to the degree to which the bread is to be cooked. The slice of bread is placed on the rest and lowered by a manual lever until it is between the electric toaster elements. At the same time this action switches on the current and also starts the timer. The timer has to be set by previous experiments to produce the colour of toast preferred. Both the HOTPOINT and the MORPHY-RICHARDS toasters work in this way. The timer in both is quite ingenious since it is operated by a bimetal strip inside a small electric heater and the latter is connected in series with the toaster element. When this bimetal strip is heated it bends and eventually cuts off the current to its own heater, so that it cools once again. When a certain point is reached in the cooling cycle the pop-up mechanism is released, the toaster element is switched off, and the toast rises out of the machine.

The SUNBEAM claims to work in quite a different way by means of a "Magic Eye" which judges when the toast is cooked and then cuts off the current and releases the toast rest. ACA's

scientists were somewhat sceptical of this idea, although it was agreed that it would be an ideal method of doing the job if practical.

Careful examination revealed that this claim was not as unlikely as was first thought and there was much truth in the makers' statements.

In the SUNBEAM the slices of toast are placed in slots which run across the length of the toaster, whereas the slots are parallel with the length in both of the others. In this make, furthermore, one particular slot must always be in use, so that if you only wish to toast one slice it must be placed in that slot. When a slice of bread is placed in this slot a thin wire lever is depressed and this switches on the current to the elements which are of different type on the outer ends of the machine from that in the centre between the slices of bread. This centre element provides the operating power since the whole centre panel decreases in height from top to bottom as soon as the power is turned on and this operates a lever system which lowers the toast gently down into place. The elements are then fully heated and the toasting commences. On the outside of the one-slice slot the element consists of two vertical spirals like those used in electric radiators and between these is placed the "Magic Eye" surrounded by a metal shield to keep away the direct heat of the element. The "Magic Eye" is really only the centre part of a sensitive bimetal strip, but when the bread is first put in it is cool and moist and no heat is reflected into the "eye". As the toast cooks, its surface gets hotter and hotter and more and more heat is reflected on to the bimetal strip of the "eye" which eventually causes sufficient expansion to operate the switch and turn off the power. The centre panel then cools and the toast rises out of the machine, but the mechanism is not ready for use again unless this piece of toast is taken right out of the slot.

This type of design implies a number of features which are not to be found in the fixed-time devices. Firstly, a thin slice of bread will cook quicker than a thick one (others factors being equal) and will therefore be released sooner. Secondly, unless a slice of bread is put into the machine the current cannot easily be switched on. This seems a good safety feature, especially when children are about. Finally, if a piece of toast is put in a second time it should be heated up quickly because it is dry and a little warm and might even still be eatable because it should quickly be returned from the machine.

ACA's Tests

1. *Electrical*

The first tests to be made on the toasters were electrical tests and these are listed in Table I, from which it will be seen that the power rating is close to that specified on the machine in each case and the insulation resistance was good in each case also.

2. *Toasting Performances*

Since the performance of the toasters is the property we really want to judge, ACA's experts took hundreds of slices of bread of various kinds and toasted them. The principal kinds of bread used were fresh white sandwich bread cut to a medium thickness of about $\frac{3}{8}$ " thick; the same bread stale; and fresh, pre-sliced wrapped milk bread. Other types of bread and other thicknesses were used in the group of 10 random slices. Stale bread used was at least two days old.

The first experiments were made with the medium thickness fresh bread and each toaster was adjusted to make acceptable toast with this bread. Five slices were then weighed on a balance and toasted, and the time required for each slice was recorded. The purpose of this was to find out whether the toasting time varied with successive slices. Finally the five slices were weighed again and the percentage loss of weight was calculated. Most people prefer their toast soft and moist in the middle and not dried out, so that the toast with the least loss in weight would usually be preferred.

The whole experiment was then repeated with white stale bread of the same thickness and then with milk bread of the pre-cut wrapped type. Before each experiment the toasters were re-adjusted so that fair toast was made from each type of bread used. The results are shown in Table II.

It will be seen that the time taken to toast the three types of white bread, fresh, stale and thinly sliced milk bread, was substantially the same in the case of HOTPOINT, although the first slice often took a little longer because the toaster was allowed to cool down between each set of five slices (the five slices, however, were each cooked in close succession). This is to be expected, since the timing device has its own heater and would take a little longer to complete the cycle starting from cold. On the other

TABLE I

<i>Toaster</i>	<i>Power rating—watts</i>		<i>Insulation resistance</i>
	<i>as labelled</i>	<i>measured</i>	<i>megohms</i>
HOTPOINT Automatic super de luxe Cat. No. 51163G1 £12/11/6	1250	1150	above 20
MORPHY-RICHARDS Automatic Model TA1S £12/12/0	1260-1500	1500	20
SUNBEAM Toastermatic Model AT35 £14/10/0*	1275	1080	20

* But see footnote at end of article.

TABLE II
Toasting Tests

<i>Bread and Test</i>	<i>Toaster</i>		
	HOT- POINT	MORPHY- RICHARDS	SUN- BEAM
<i>While medium fresh</i>			
Loss in weight ..	18.5%	19%	16%
Time to cook slice 1 ..	123 sec.	120 sec.	150 sec.
Time to cook slice 5 ..	102 sec.	97 sec.	118 sec.
<i>While medium stale</i>			
Loss in weight ..	13.5%	14%	14%
Time to cook slice 1 ..	117 sec.	97 sec.	112 sec.
Time to cook slice 5 ..	102 sec.	86 sec.	106 sec.
<i>Wrapped milk pre-sliced</i>			
Loss in weight ..	28%	35%	23%
Time to cook slice 1 ..	114 sec.	93 sec.	73 sec.
Time to cook slice 5 ..	115 sec.	94 sec.	76 sec.
10 Random Slices No. acceptable ..	5-6 slices	5-6 slices	8 slices
Slice recooked once more	Burnt	Burnt	A little darker

hand this gives the first slice a little longer toasting time and since the whole machine is starting from cold this helps to ensure that the first slice is not undercooked.

Very substantially the same results were obtained with the MORPHY-RICHARDS toaster. Again the first slice took a little longer to toast than did the later ones.

The extent to which the bread lost weight with both toasters was very similar. It will be seen that the loss is greatest with the thin and light milk bread and least with the stale bread.

The SUNBEAM toaster behaved similarly to the other two with the medium-cut fresh and stale bread and again the first slice took rather longer to cook because the apparatus was cold at the start. The loss in weight was also about the same as with HOTPOINT and MORPHY-RICHARDS.

When the thin milk bread was toasted, however, the SUNBEAM was quicker than either of the others and the loss of moisture was the least of the three tests.

Three groups of 10 slices of bread were next made up, each consisting of the same grouping of all the different types and thicknesses of bread at the testers disposal. Each group was then toasted in one of the three toasters, previously set to give an acceptable result with medium-cut fresh bread, without altering the adjustment between slices. Each slice of the set was then judged as acceptable or not. The results are given in Table II and it will be seen that 5 or 6 of the slices were satisfactory with HOTPOINT and MORPHY-RICHARDS, whereas the principle used in the SUNBEAM enabled 8 acceptable slices to be obtained.

As a final test a medium slice of fresh bread was toasted in all three machines and then put in again after an interval of 2 minutes. In both the HOTPOINT and the MORPHY-RICHARDS the toast was burnt, but in the SUNBEAM it was quickly ejected only a little darker than before. Admittedly one usually can prepare toast as required—this is the virtue of breakfast table toasting—but it could be useful to reheat a slice once again if it became too cold.

After the toasting experiments were completed each toaster was carefully opened up by an instrument maker and the mechanism was examined by ACA's experts.

The different construction of the two main types has already been described, but between HOTPOINT and MORPHY-RICHARDS the differences were only small. There was evidence of a better finish on the component parts of the MORPHY-RICHARDS (marked "Made in England" incidentally) and the method used in this toaster to vary the time of toasting was rather more precise than that of the HOTPOINT.

Safety with Children

An ordinary envelope was put into each toaster in an effort to see what would happen if a child were to do this sort of thing. The SUNBEAM rejected it after a few seconds. The paper was hot but only slightly scorched. In both the HOTPOINT and MORPHY-

RICHARDS the paper had to be taken out early in the toasting cycle or it would have burst into flames. This is a small point but a useful one since it is not possible to start the SUNBEAM unless the wire starting lever in the toast compartment is depressed and when started in this way the apparatus promptly switches off again, whereas the other types complete the fixed time cycle in each case, once the external starting lever has been pushed down.

Conclusions

All of these automatic toasters are a very great improvement over the old manually operated kind since the current is on only long enough to cook the toast. The cost of electricity is reduced since at, say, 3d. per unit, two slices of toast can be cooked for about one-tenth of a penny. Often the old-fashioned toaster stayed on all through breakfast—perhaps for half-an-hour—and might cost 1½d. per day to use in

this way. The safety with all three types of toaster is much greater than with the older type since the current switches off automatically and it does not matter if the toaster is forgotten.

Any one of these will make excellent toast, but for sheer ingenuity and sound construction ACA has to recommend the SUNBEAM with the great advantage that it is better able to cope with different breads and different thickness of slices.

ACA Recommends :

SUNBEAM Toastermatic, Model AT 35.
Price £14/10/-*

*This is the advertised price, but ACA's buyer was charged £1/0/0 less, i.e., £13/10/0, by the store at which our model was bought. This reduction was unsolicited and the store was unaware that the buyer was in any way connected with ACA. Apparently this reduction is a common trade practice, and we therefore recommend to members that they inquire over a wide field before making their purchase.

KNIGHT'S "RELAXIN"

The most expensive

Aspirin

ACA has found

Our photograph shows a pack of Knight's "Relaxin" which ACA bought for 5/6d. in Sydney.



Inside the pack was a leaflet, together with 30 tablets. The tablets were analysed for ACA and were found to have a mean weight of 355 milligrams and to contain an average of 4.8 grains of aspirin each. They also passed the other tests of the British Pharmacopoeia (1958) for Aspirin Tablets.

This is what these tablets are—ordinary aspirin tablets.

The price is twice that of any other brand ACA has bought (see *Choice* No. 1) and the claims made on the leaflet with them are gross exaggerations of the properties of aspirin.

We reproduce below a selection of the phrases from the leaflet together with ACA's comments :

"RELAXIN is a scientifically compounded medicine made under licence by one of Australia's leading Medical and Pharmaceutical Scientists."

Comment—These are 4.8 grain Aspirin Tablets.

"RELAXIN is the ideal and safest sedative for Men, Women and Children. Its ingredients have been endorsed by the British Medical Profession. It does not affect the heart, or any other organ. It contains no Narcotics, no Barbiturates, no Bromides, and it is Non-Habit-Forming. Therefore, NO PRESCRIPTION IS NEEDED."

Comment—Aspirin is not a sedative.

"RELAXIN being such a safe and effective sedative for the general nervous system, has a wide range of uses in conditions due to Nervous upsets, such as MENTAL DISTRESS caused by WORRY, MENTAL STRAIN, OVERWORK, GRIEF, ANXIETY and OVER-EXCITEMENT."

Comment—Aspirin is not a sedative.

"RELAXIN is a special combination of ingredients to calm down Jittery Nerves, and makes you feel more RELAXED and able to stand up to the strains of modern life."

Comment—This is a simple aspirin tablet, not a combination of ingredients. If it makes you feel more relaxed, then faith is the basis for this.

"In all Rheumatic conditions, RELAXIN acts as a relaxant. It relaxes the muscles and the joints and in this way relieves the severe pain experienced in these maladies."

Comment—Aspirin does not relax muscles or joints.

"SEA, AIR, TRAIN and CAR SICKNESS. One tablet three or four times a day for a few days before commencing the journey."

Comment—Aspirin does not prevent motion sickness.

"DENTAL VISITS.

RELAXIN is excellent for allaying fear and apprehension before extractions or fillings."

Comment—Aspirin is not a tranquillizer. It will ease toothache but not allay fear or apprehension.

The leaflet continues with other claims in this vein.

ACA asks why the manufacturer does not label the product as Aspirin Tablets and warns its members not to be misled by the claims for this product. We would also point out that 5/6d. is an exorbitant price to pay for 30 tablets containing 4.8 grains of aspirin each. Compare the prices in the article on Aspirin in *Choice* No. 1.

35 MILLIMETRE SLIDE PROJECTORS

The popular 250 and 300 watt models

Practically everybody has used a camera at some time or other and nowadays most people with a continuing interest in photography have had some experience of colour film. It is generally agreed that colour transparencies must be projected to be appreciated properly. Seen on the screen (or the white wall) the record of your summer holiday or of baby's progress has a dramatic quality. Many who regard photography as no more than a means of recording life's happier moments are now buying projectors with which to view their colour shots and show them to their friends.

In this article ACA reports on 35 mm. slide projectors of the power generally accepted as most appropriate for home use—250–300 watts lamp power. These projectors are designed primarily for slides made from 35 mm. film (picture size usually 23 mm. x 34 mm.) but some of them can be used also for so-called "super slides" with a picture area $1\frac{1}{2}$ " square. In either case the finished slides are 2 inches square. Each projector tested was obtained with the simplest type of slide changer, that is, the manual type; more or less automatic forms are usually available as alternatives.

PART I—A GENERAL ACCOUNT OF ACA'S TESTS AND FINDINGS

The main problems which confront the designers of a slide projector are:

- (a) To design a projection lens which will give a sharp image, free from unwanted colour effects, blurring, and distortion of form.
- (b) To collect sufficient of the light given out by the lamp and deliver it reasonably uniformly to the screen.
- (c) To protect the lamp, the light-collecting lenses (condenser lenses) and the inserted slide from heat damage—an important consideration in projectors with lamps of 200 watts power or greater.

To design the optical system for a good projector is a highly specialized job, well beyond the capabilities of even the most sophisticated amateur photographers. This is particularly true of the projection lens, which is an expensive component, and indeed it is well known that lenses of comparable price from different manufacturers vary considerably in performance. The usual arrangement of the optical components is shown in our diagram.

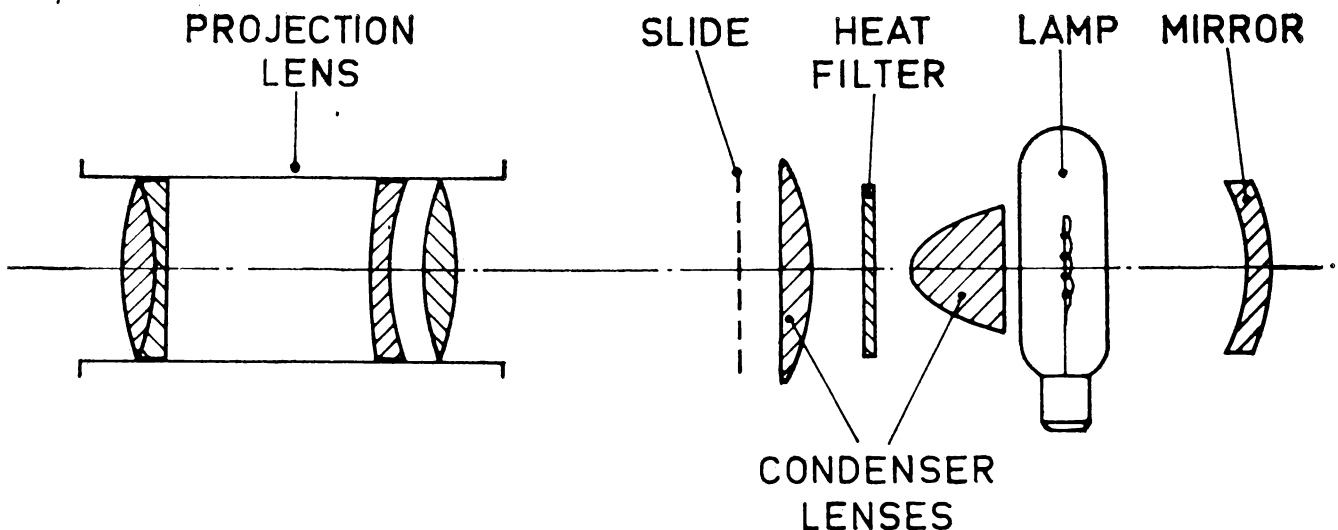


TABLE I
SUMMARY OF PROJECTOR CHARACTERISTICS AND TEST RESULTS
(For details see following tables)

Projector	Made in	Price	Picture size† at 10'	Resolution	Lamp wattage	Blower	Switch	Projected light†	Uniformity of illumination	Super slides (1½" x 1½")	Cooling (inc. slide)	Slide holder	Facility for strip film	Adjustment for elevation and tilt	Access to lamp and lenses	Noise	Remarks
ALDIS 303	Eng.	£ s. d. 31 17 0 ‡	47"	Good	300	Yes	Governs lamp and blower	250	Fair	Yes	Very good	Good	No	Elevation only, good	Very good	Considerable	Neat appearance, small to carry
ARGUS 300	Aust.	28 0 0	40"	Good	300	Yes	Governs lamp only	140	Very good	Yes	Very good	Fair	No	Elevation only, very good	Good	Moderate	—
BELL & HOWELL HI-LYTE	Aust.	26 10 0	40"	Good	300	Yes	Governs lamp only	200	Very good	Yes	Fair	Good	No	Elevation only, very good	Good	Moderate	Compact
KODAK MERIT	Aust.	19 10 0	31"	Good	250	No	None	80	Good	Yes	Poor	Poor	No	Elevation only, good	Poor	None	Plastic body, very light
LEITZ PRADO 250	Germ.	39 2 3 *	44"	Excellent	250	No	Governs lamp (no blower)	240	Good	Yes	Fair	Very good	Yes	Elevation only, good	Excellent	None	Excellent finish
NORIS TRUMPF AIRFLOW 300	Germ.	42 10 0 ‡*	40"	Fair	300	Yes	Governs lamp and blower§	200	Very good	No	Very good	Fair	Yes	Elevation only, excellent	Fair	Moderate	Excellent finish
VUMAX	Aust.	35 0 0	40"	Very good	300	Yes	Governs lamp and blower	250	Good	No	Good	Fair	Yes	Elevation and tilt, very good	Fair	Moderate	—
WATERWORTH	Aust. (inc. lens)	36 15 0 ‡	40"	Good	300	Yes	Governs lamp only	230	Fair	No	Good	Fair	Yes	Elevation and tilt, very good	Good	Very quiet	Rather heavy

* Lamp additional (approx. 30/-).

‡ Long dimension of standard 35 mm. mask

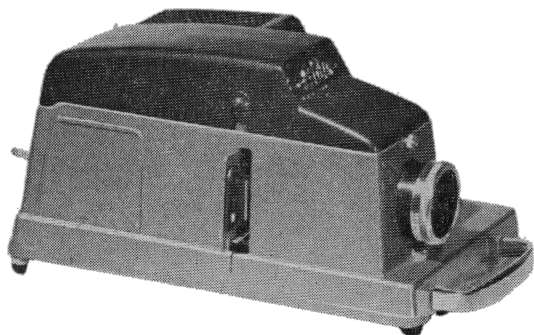
(some brands offer a choice).

† Total projected light in lumens.

‡ Price includes carrying case.

• Film strip carrier is an extra.

§ Rotary switch with lamp-saving position.



Aldis 303

The problem of avoiding heat damage is usually dealt with by incorporating a blower; this floods the lamp, the condenser system, and the slide with a current of air. However, two of the projectors tested, both with 250 watt lamps, have no blowers but rely for their cooling on an exploitation of the natural air flow. Since the heating of a slide occurs mainly because it absorbs some of the beam from the lamp, a special glass filter is incorporated in projectors to remove from the beam most of the infra-red radiation, which would otherwise heat the slide strongly without contributing anything to the picture.

As well as having to deal with the three aspects listed above, the designers have to achieve a satisfactory mechanical design and, generally, an instrument which is safe, quiet, convenient and versatile.

As you will shortly see, the tests to which the projectors were subjected by ACA correspond not only with the consumers' requirements but also with the designers' problems.

ACA's Purchases

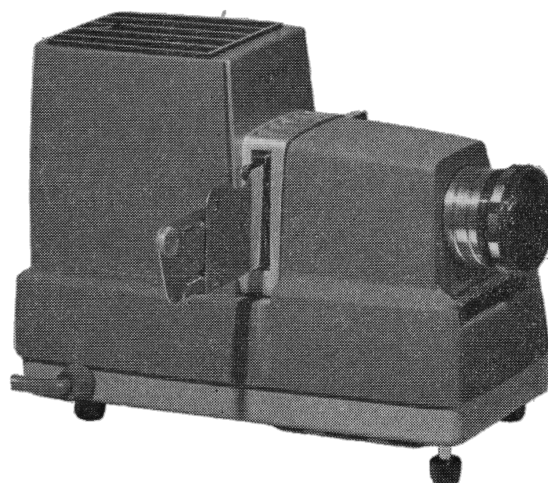
ACA set out to purchase all generally available brands of projectors which possessed 250 or 300 watt lamps and which were obtainable with manual slide changers. Eight projectors were obtained. In some cases it was necessary to enquire at several large city suppliers even though the brand was well known. Contrary to a widely held belief, there appear to be no Japanese projectors of the present lamp rating (or higher) available here, at least in Sydney.

The brands obtained and the prices paid for them are shown in Table I. You will see that

two are imported German projectors, one is English and the others are Australian made. However, of the Australian instruments, two are made under licence to overseas companies, namely the ARGUS and the BELL & HOWELL, while only the WATERWORTH incorporates an Australian made projection lens.

The ALDIS is, in effect, built into a carrying case of compact size while the NORIS AIRFLOW and WATERWORTH are supplied with light-weight (if rather large) carrying cases. Carrying cases for the other projectors are optional and ACA did not buy them. Prices of the projectors ranged from £19/10/0 for the KODAK MERIT (with lamp but not carrying case) to £42/10/- for the NORIS AIRFLOW (with carrying case but no lamp; lamp 35/- extra).

In the fourth column the table gives the size of a projected 35 mm. picture (long dimension of a 23 x 34 mm. frame) for a distance of 10 feet from projection lens to screen. This size depends only on the quantity known as the *focal length* of the lens. A choice of focal length is available in some brands (ALDIS, ARGUS and LEITZ PRADO), and if a lens of focal length different from that shown in Table II is obtained then the picture size will be different from that given in Table I. If your room is small you require a lens of short focal length, while for large rooms and halls the focal length should be long. The



Argus 300

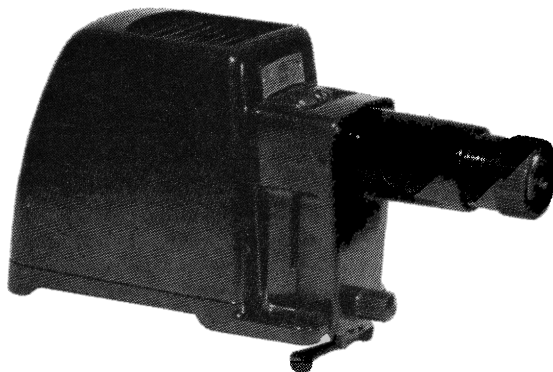
commonest value for home use is 4 inches (10 cm.), giving a picture size of 40 inches at 10 feet. For a given projector the picture size is twice as great for twice the distance from the screen, and so on.

The Tests

ACA's tests were in four categories :

- (i) *Optical*, concerning the sharpness and general quality of the image.
- (ii) *Photometric*, mainly concerning the amount of light projected and the degree of uniformity of the illumination of the screen.
- (iii) *Temperature measurements*, principally on the external parts of the projector and on the slide being projected.
- (iv) *Sundry tests*, concerning mechanical details, the amount of noise made by the blower and the electrical insulation.

Those who wish to know more about our tests will find greater detail in PART II of this article, below. In the present part we are concerned only with Table I, which summarizes the principal results and records a number of

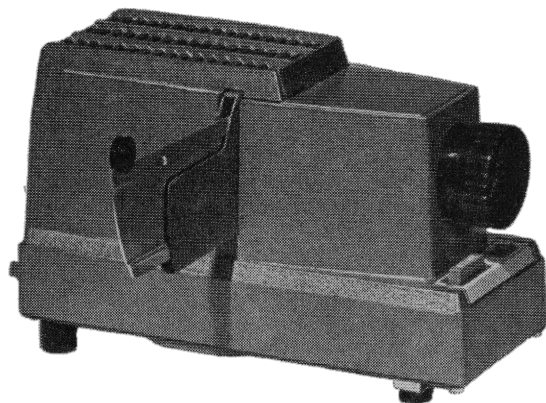


Kodak Merit

them. However, if they are more closely spaced than a certain distance then only a general blur will appear, and to count the lines would be impossible. In the first case the lines are *resolved* and in the second they are not. A lens has a better resolution than another if it can resolve lines more closely spaced, and it will give a sharper picture.

A Consideration of Table I

We must consider the significance of some of the information given. Under the heading "Switch" we see whether the switch (if any) governs the blower (if any) as well as the lamp. It is better if it does not, for then, when you are shutting down, you can first turn off the lamp and allow the blower to cool the projector before you move it or put it away. The NORIS AIRFLOW, ALDIS and VUMAX have what



Bell & Howell Hi-Lyte

features of the projectors which the prospective buyer would be wise to understand.

We must explain what is meant by the term "resolution" used in Table I. If your slide has, in some region of the picture, a group of parallel, equally-spaced lines, then if they are not too close together they will appear separate on the screen and you would find it possible to count



Leitz Prado

TABLE II
OPTICAL DETAILS

Projector	Lens	Focal Length	Aperture Ratio	Resolution (lines/mm.)			Aberrations●			
				Centre of Image	8 mm. from Centre	Corner●	Chromatic	Astigmatism	Curvature of Field	Distortion
ALDIS 303	ALDIS ANASTIGMAT	8.5 cm.	f 2.5	75	55	30	Considerable at corners and slight general	Considerable at corners	9 inches forward at corners	Negligible
ARGUS 300	ARGUS PROJECTION	10 cm. (4")	f 2.8	80	50	40	Negligible	Negligible	Slight	Negligible
BELL & HOWELL HI-LYTE	HI-LYTE ANASTIGMAT	10 cm.	f 3.5*	50	40	40	Negligible	Considerable at corners	Slight	Negligible
KODAK MERIT	KODAK PROJECTION	13 cm. (5")	f 3.5	55	50	35	Negligible	Not observable	Not observable	Negligible
LEITZ PRADO	COLORPLAN	9 cm.	f 2.5	80	Better than 80	60	Negligible	Slight	A few inches forward at corners	Negligible
NORIS TRUMPF AIRFLOW 300	ISCO	10 cm.	f 2.8	50	45	20	Considerable at corners and slight general	Considerable at corners	Not observable	Negligible
VUMAX	ENNAR	10 cm.	f 2.8	70	65	40	Negligible	Moderate	A few inches forward at corners	Negligible
WATERWORTH	WATERWORTH	10 cm.*	f 2.9*	45	45	30	Negligible	Negligible	Slight	Negligible

* Measured.

● Positions relate to 23 mm. x 34 mm. frame.

† The finest line spacing on the test slide.

we consider is the wrong arrangement. It is a simple matter to alter this, but don't attempt the alteration yourself unless you have the necessary knowledge.

As regards the "Projected light" it may be mentioned that a British Standard Specification (B.S. 1915) which covers 35 mm. slide projectors used "for educational purposes" requires a minimum value of 100 lumens. However, the brightness of the picture depends on the projection distance—you can have a smaller but brighter picture by working closer up. Actually, the eye is not very conscious of an improvement in illumination of 2 to 1; for equal picture sizes the difference between the KODAK MERIT and some of the other projectors is about 3 to 1, a quite noticeable but not enormous difference.

In most of the projectors the slide holder leaves something to be desired. Some specific defects are mentioned below which obviously could easily have been avoided by the manufacturer. One point which should be made here is that glass-mounted slides for use in the

ARGUS and BELL & HOWELL projectors must have their edges square to their surfaces; in particular the two glass pieces enveloping the film must be fixed in close register so that no overlap occurs at the edge. Otherwise, the slides will not be properly positioned in the projector. This problem scarcely arises with the thinner cardboard mounted slides.

Under the heading "Facility for Strip Film" we indicate the possibility or otherwise of using an attachment with two spools so that a continuous strip of 35 mm. film can be wound through. This is very important if the projector is likely to be used for educational purposes or other serious work. For use with this attachment the LEITZ PRADO, NORIS AIRFLOW, and VUMAX have a rotating head so that the frames of a film can be turned at right angles. In the following column of the table, reference is made to adjustments for elevation and tilt. In our opinion the adjustment for tilt (sideways) is not necessary and unless very simple could be a liability to some people. On the rare occasions

when a level surface is not available for the projector it is no hardship to improvise one. An adjustment for elevation is, of course, essential; a considerable angle of elevation is possible before the top and bottom of the picture will not focus simultaneously. In all the projectors the lens barrel is rotated to obtain a focus and the action is satisfactory. Likewise, in every case the insulation resistance of the electrical circuit was found to be satisfactory.

The noise produced by a projector worries some people more than others, but in our opinion the noise level of the WATER-WORTH will worry very few, while that of the ALDIS will worry many, and provide significant competition for the commentator as he talks about the pictures.

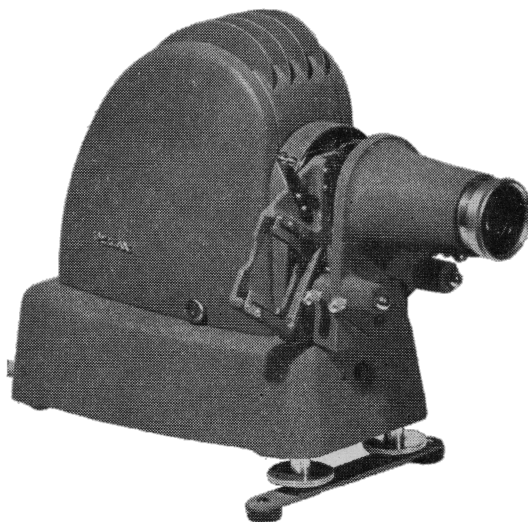


Noris Airflow

We would review the projectors as follows :

ALDIS 303 : Good in most respects. The main disadvantages are some falling-off in performance of the lens at the corner of the picture, a slightly excessive falling-off in brightness at the corners, and an unpleasant level of noise. The ALDIS is outstandingly convenient to carry about.

ARGUS 300 : Good in most respects. The main disadvantages are a light output somewhat below average but nevertheless not bad, a slide carrier which too easily ejects the slides



Vumax

right out onto the table, and a moderate noise level.

BELL & HOWELL HI-LYTE : Good in most respects. The slide temperature is relatively high, but below the limit set by the British Standard, and there is moderate blower noise. The light output would be considerably higher were it not for a geometrical error involving the mirror behind the lamp.

KODAK MERIT : The projection lens of this instrument is quite good, but a number of other features are not good, apparently having suffered so that the price would be low. The temperature reached by a dark slide is well in excess of that allowed by the British Standard and the body temperature is unpleasantly high. The absence of blower noise does not compensate for these disadvantages. The light output is exceptionally low.

LEITZ PRADO : Very good in practically all respects. However, the slide temperature is close to the limit set by the British Standard. The complete absence of noise, in our opinion, compensates for this disadvantage. The projection lens is exceptionally good and the projector is particularly versatile.

NORIS AIRFLOW : The mechanical design and finish of this projector are good but the lens has the poorest performance of those

tested Nevertheless, even this performance conforms to the British Standard, the requirements of which, as regards resolution in the corners, seem to be remarkably modest. The slide holder, although apparently well made, jammed a test slide (glass mounted) and there is apparently insufficient allowance for normal slide thicknesses.

The provision of high and low positions on the switch is a good feature.

VUMAX: Good in most respects. For 35 mm. slides the lens is better than average. The slide holder, however, does not allow glass-mounted slides to lie back in the pockets as is essential. The trouble seems to be that the crackle-finish enamel which covers the back and sides of the pockets is too thick. It also provides too much friction.

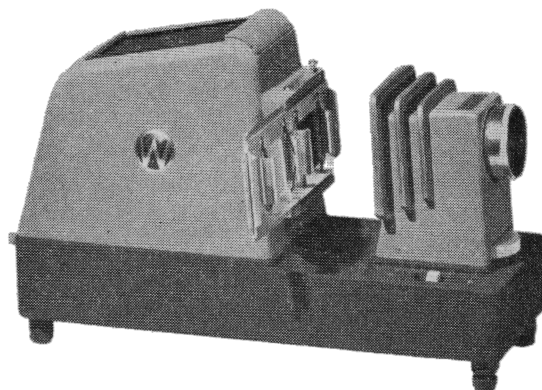
WATERWORTH: Good in most respects. The falling-off in brightness at the corners of the picture is slightly excessive and the slide holder is loose. The **WATERWORTH** is easily the quietest of the blower-cooled projectors.

ACA's recommendations

For the connoisseur, who desires the best, ACA recommends the **LEITZ PRADO 250** at £39/2/3 plus lamp.

For the projection of colour slides in the home ACA considers the *best value* to be the **BELL & HOWELL HI-LYTE** at £26/10/- (including lamp).

Both these projectors can be fitted with their proprietary semi-automatic slide changers. These have not been tested by ACA.



Waterworth

TABLE III
PHOTOMETRIC DETAILS

<i>Projector</i>	<i>Screen Illumination at Centre*</i>	<i>Corner● Illumination - Centre Illumination</i>	<i>Flare Light, † % of Centre Illumination</i>	<i>Visual Impression</i>	<i>Light Leakage</i>	<i>Type of Lamp Base</i>	<i>Back-image of Filament</i>
ALDIS 303 (300 W lamp)	63	45%	0.7%	Seemed brighter at centre	Not significant	G17Q	Poorly positioned
ARGUS 300 (300 W lamp)	31	82%	0.8%	Seemed uniform	Some to ceiling	BA15S	Poorly positioned and faint
BELL & HOWELL HI-LYTE (300 W lamp)	39	76%	0.6%	Seemed uniform	Some to ceiling and bright pencil to upper right	BA15S	Correctly positioned but very faint†
KODAK MERIT (250 W lamp)	17	59%	0.7%	Less bright to left, especially at top	Very little	P28	Correctly positioned
LEITZ PRADO (250 W lamp)	62	57%	0.7%	Seemed uniform	Not significant	P28	Adjustable
NORIS AIRFLOW (300 W lamp)	35	73%	0.7%	Generally coloured to left	Noticeable halo around screen	BA15S	Adjustable
VUMAX (300 W lamp)	59	66%	0.5%	Coloured and less bright to left side	Some to ceiling and some to above screen	P28	Poorly positioned
WATERWORTH (300 W lamp)	54	46%	0.4%	Coloured and less bright to lower right	Not significant	P28	Correctly positioned

* Lumens per square foot for 35 mm. mask projected to 2 feet x 3 feet.

● Corner of 35 mm. mask projected to 2 feet x 3 feet.

† At centre of 35 mm. mask projected to 2 feet x 3 feet.

‡ Geometry defective; see text.

PART II—SOME TECHNICAL DETAILS FOR THE ENTHUSIAST

In Part I there has been no mention of the aperture ratio (f-number) of the projection lens, which amateur photographers are usually keen to know. It is quite unnecessary to know this ratio if you have direct information on the quality of the image and the intensity and distribution of the screen illumination. The aperture ratio is of little significance if the condenser system does not fill the projection lens with light, and the extent to which that system does so has not been investigated.

The optical performance of the projection lens, *as used in the projector*, is detailed in Table II. The focal length of the WATERWORTH lens, and the aperture ratio of that lens and of the lens of the BELL & HOWELL HI-LYTE, were not stated by the manufacturers and so were measured.

To appreciate properly the figures given for the resolution it is necessary to consider the effects of any astigmatism and curvature of the field. The term astigmatism refers to the fact that the focuses for radial and tangential lines in the outer field are different. Curvature of the field shows up as a difference in focusing adjustment for the central field and the outer field (compromising between radial and tangential lines). The values of resolution given are for a single setting of the focus, the sharpness being made greatest at points 8 mm. from the centre. If, in the outer field, radial and tangential lines were not equally resolved, the worst case was taken. The British Standard requires a minimum of 56 lines/mm. to be resolved at the centre and 14 at the corners.

As regards the aberrations, in our opinion the colour effects associated with the corners (transverse chromatic aberration) are more objectionable than the associated deficiency of resolution in those regions. The astigmatism and curvature of the field will seldom be noticed in any of the lenses tested, except as a general loss of definition in the corners; this, however, is already taken into account in the figures given for the resolution. The words "Not observable", in the table, mean that the particular aberration could not be distinguished from other effects. The absence of distortion *of projected shapes* in any of the lenses was a surprise. Quite a sensitive test failed to reveal any.

Table III gives some details of the photometric tests. The figures on illumination are self-explanatory but it may be mentioned that to conform to the British Standard the illumination at the corner must not be less than 50% of that at the centre, while to conform to the American Standard it must not be less than 65%. The flare measurements require some explanation. A slide was made with a 6 mm. diameter black spot at the centre of a standard 35 mm. mask and projected so that the frame image was approximately 2 feet x 3 feet in size. The illumination on the black spot in the image was then measured in the plane of the screen. The values obtained are commendably low. A flare of 1% (of the surrounding illumination) barely affects the contrast but 2% would probably be noticeable on black areas. The VUMAX and especially the WATERWORTH have significantly less flare than the other projectors.

Under "Visual Impression" any lack of uniformity of brightness or colour is recorded. Comparison of these observations with the detailed illumination measurements confirms that the eye does not notice a falling-off in illumination which occurs gradually across the screen until the illumination ratio is about 2 : 1.

As regards light leakage, the pencil of light which leaves the BELL & HOWELL could catch the operator's eye if he sat directly beside the projector on the right. However, the projector is small and the ideal operator position would be directly behind, as would be possible with the instrument on a table. The halo thrown forward by the NORIS comes from the condenser lens while the light thrown forward by the VUMAX comes from the chromium-plated ring which is part of the rotating head.

The projectors are, as one would expect, all equipped with spherical mirrors behind the lamp to image the lamp filament in its own plane. The images of the filament coils should be interposed between the actual filament coils and not superimposed on them, which would result in a loss of light and a shorter lamp life. In the LEITZ and NORIS projectors the lamps can be moved by a lever to make the adjustment. If a card with a pinhole in it is placed in the slide position and the projection lens is removed, an image of the lamp filament and of its back-image are thrown onto the screen regardless of its distance. You will see from Table III that use of a pre-focus lamp is

TABLE IV
TEMPERATURES AND SUNDRY DETAILS

<i>Projector</i>	<i>Temperatures</i>			<i>Slide Holder</i>	<i>Elevation and Tilt Mechanisms</i>	<i>Instructions Booklet</i>
	<i>Body</i>	<i>Louvers or Grille</i>	<i>Slides</i>			
ALDIS 303	Warm	Only warm	Nowhere above 125°F.	Through body, two slide pockets	Balanced elevation by front feet, locks by side knob; no tilt	Illustration, setting-out and information fair
ARGUS 300	Barely warm	160°F.	Nowhere above 125°F.	Through body, novel type; requires care	Front feet drop, lock by release of bar; no tilt	Illustration, setting-out and information very good
BELL & HOWELL HI-LYTE	Barely warm	175°F.	Maximum 180°F. General vertical increase	Through body; convenient except removal of last slide	Front feet drop, lock by release of bar; no tilt	Illustration good, setting-out poor, information fair
KODAK MERIT	Upper sides too hot to touch (175 to 200°F.)	Above 450°F. where hottest Must not be touched	Maximum 280°F. Hotter to one side†	Slides push down into body; inconvenient, especially removal of last slide	Front feet drop, lock by front screw knob; no tilt	Illustration, setting-out and information excellent
LEITZ PRADO	Sides very warm (touchable)	Above 300°F. where hottest Must not be touched	Maximum 205°F. Approx. symmetrical	Two pockets; slide well located	Pivots on a base, locks by screw knob; no tilt	Illustration, setting-out and information excellent
NORIS AIRFLOW	Warm	Outer fins too hot to hold• (135°F.)	Nowhere above 125°F.	Two pockets; slide well located but can be tight	Body pivots on base by turning knob; no tilt	Illustration, setting-out and information good; lamp type not stated
VUMAX	Upper sides very warm (touchable)	Outer fins too hot to hold• (135°F.)	Approx. 125°F. over most	Rotary between stops; silent and attractive but slides do not fit well†	Elevation and tilting by two knurled screws at front	Not illustrated, setting-out and information fair
WATERWORTH	Barely warm	240°F. maximum	Maximum 130°F. Symmetrical	Two pockets; holder too loose in guides	One of four feet adjustable for firmness, then separate screws for elevation & tilt	Not illustrated; badly set out, information fair; lamp type not stated

§ A single 2" x 2" glass slip, blackened.
• Possibly would be grasped if lifted.

† Corresponds with unsymmetrical screen illumination.
‡ See text (Part I).

no guarantee of proper location of the back-image (VUMAX and ALDIS). The back-image in the ARGUS is so faint as to contribute very little light. This is probably attributable, to a large extent, to the use of a metal reflector, integral with the lamp chimney.

The back-image in the BELL & HOWELL is of negligible intensity in spite of the use of a silvered glass mirror behind the lamp. In this case there is obviously some error in the geometrical arrangement, involving the mirror. (If the lamp chimney, which incorporates the mirror and the first component of the condenser, is forcibly pushed forward the amount of light contributed by the mirror rises rapidly).

Table IV summarizes ACA's temperature measurements, gives some details of the mechanical features of the projectors and, as an indication of ACA's interest in the instruction booklets, provide some comments on those too. It may be added that in all but one of the projectors, a special glass heat filter is incorporated between the components of the condenser. In the BELL & HOWELL the same effect is achieved by using a special, slightly greenish glass for the first lens of the condenser.

Some readers may be interested in the method used to obtain the slide temperatures,

especially if they happen to be aware that surface temperatures can be quite a problem to measure. A single slip of glass such as is used to mount slides was lightly ground on both sides and blackened by painting one side with a graphite paint. The other side was dusted with a coarse powder of a substance with a known and sharply defined melting point, let us say 150°F. After blowing-off any loose powder, the slide was placed in the slide holder of the projector, blackened side towards the lamp. (The projector had been turned on half-an-hour earlier). After 5 minutes the slide was removed and the area in which the powder had melted, i.e., in which the temperature exceeded 150°F, was observed. By repeating the procedure with substances of other melting points a clear picture of the distribution of temperature over the slide was obtained. Our blackened slides would certainly get no hotter than a cardboard-mounted transparency of a street scene taken at night, or the entrance and surround of a dark tunnel. The British Standard requires slide temperatures not to exceed room temperature by more than 135 Fahrenheit degrees, while the American Standard sets a temperature limit of 212°F.

HOW TO BUY A SECOND-HAND CAR

What follows is the best advice we have ever come across on what to look for when inspecting a used car for possible purchase. It is reprinted (with minor modifications to suit Australian conditions) from Consumer Reports, May, 1960, published by the Consumers Union of U.S., Mount Vernon, New York.

The tests are arranged in three grades: (i) On the Lot Tests; (ii) Driving Tests; and (iii) Shop Tests. The first two categories you can carry out quite easily yourself; the Shop Tests can be done by any qualified mechanic for a moderate fee.

We are fortunate in Australia in having a number of excellent motoring associations to give us impartial reports on used cars, and ACA strongly recommends its members to make use of these inexpensive facilities. However, by carrying out some or all of the following tests yourself, you can avoid calling on the experts unnecessarily and so save inspection fees on vehicles that are obviously faulty.

If any used car dealer is unwilling to allow you to make these tests, then you should have no more to do with him, because they are all reasonable and necessary checks.

The On-the-Lot Tests

You can easily perform the first nine tests; they require no mechanical knowledge whatever.

1. In a good light, study highlights and reflections along body sides and top (not the mudguards). Spots that look repainted, or ripply areas on the sheet metal, indicate possible damage to the car's basic structure. If they exist, reject the car.

2. Search by thumb or finger pressure along the lower edge of body, doors, and boot for areas weakened or rusting. Pimples or flaking as well as actual rust spots are visible signs of body

rusting, which is difficult and expensive to repair. If they exist, reject the car.

3. Run all windows up and down; if they don't work, repair is fairly expensive. Open and close doors a few times; if they sag, drop down on opening, don't seem to fit, or have to be slammed to close, they will be hard to fix and—worse—may be signs of a bent frame. In which case, better reject the car.

4. Press along the surface of seats to detect sagging or broken springs, a sign of high mileage, hard usage, or abuse. New-looking seat covers often hide worn, damaged, or dirty upholstery; contrariwise original upholstery in good condition is a favourable sign.

5. Pedal pads, floor mats, arm rests, or boot interiors that are worn indicate high mileage more clearly and more truthfully than speedometer figures. If these items have been refurbished or replaced, the warning is stronger.

6. Take a look at all five tyres; if they are badly worn—or new-looking—even a late model presumably has covered at least 20,000 miles. Cupped or unevenly worn treads on *any* wheels indicate that front wheels have been out of line. Scuffed side-walls suggest a poor or careless driver.

7. Press steadily on the brake pedal for a minute or so; if the pedal sinks toward the floor under this sustained pressure, there is hydraulic brake leakage. Failure to repair it is hazardous, and the repair cost may be considerable.

8. If the car has a clutch, press down the pedal lightly, by hand. Before pedal resistance increases sharply, there should be about an inch of free motion—some is essential, otherwise clutch repair probably is, or soon will be, needed.

9. If steering is manual rather than power-assisted, stand beside the car and move the steering wheel gently back and forth (with front wheels pointed straight ahead). More than two inches of free play before the front wheels respond indicates that adjustment is needed. If the car has power steering, start the engine and do the same test. There should be almost no free play.

For the next four tests, you need only look the engine over, start it up, then use your eyes and ears.

10. Look for signs of water or oil leaks, which indicate faulty gaskets, or seals, or the need for radiator repairs. Check also for cracks or spots where welding has been done.

11. Remove the thick, high-tension wire from the centre of the distributor or from the coil, so that the engine won't start. Operate the starter briefly; repeat half a dozen times, listening for grinding or clanking sounds. They indicate the possibility of a big repair job—worn or missing teeth on the flywheel gear, or worn starter parts.

12. Put the high-tension lead back in place and start the engine. Let it warm up while you listen for sporadic or unusual noises; if any are present, have a mechanic identify them before considering purchase. After the engine is warm, race it briefly several times; bright-blue exhaust smoke in any volume says that a costly piston-ring job may be needed.

13. Check all cockpit controls, instruments, and gauges to make sure they are functioning.

The two final On-the-Lot Tests require some muscular effort.

14. At the side of the car, stoop facing a front wheel and grasp the top of it with both hands. Shake it, with some force, to and from you. Clunking sounds or a lot of free play (looseness) betrays loose or worn wheel-bearings or worn suspension joints. Repair is expensive.

15. Push down rhythmically on one corner of the car at a time, so as to set it bouncing. When you release it, the car should move up or down, then stop at an equilibrium position. Freer motion—up and down, say—signals badly worn shock absorbers, which should be replaced for reasons of safety as well as comfort.

The Driving Tests

If a car still looks reasonably good to you after you have run through the On-the-Lot Tests, take it out on the road. This is essential before you buy. If the dealer won't allow this, go elsewhere. If he wants a cash deposit before a driving test, make sure that, if you reject the car, he will refund the cash, *not* merely give you a credit on some other car on his lot. When you get the car on the road, keep listening for serious-sounding rattles, knocks, or squeaks. In a sense, every rattle is a defect report—and too many should lead you to reject the car.

No fast, expert, or strenuous driving is necessary for any of the Driving Tests.

16. Start off from rest several times. Once you are used to the clutch, it should provide

smooth engagement, forward or backward, without jerk, grab or chatter; if these symptoms occur consistently, adjustment or replacement of parts is needed. An automatic transmission also should start off smoothly. Work on either clutch or automatic transmission is expensive.

17. Accelerate several times from 10 or 15 mph to 40 mph in high gear, or in "Drive" range in an automatic. The car should pick up smoothly, without engine hesitation or bucking. If it doesn't, engine tuning or other work is needed. An automatic should give smooth, evenly-spaced shifts, and the engine shouldn't "break away", or race, during shifting.

18. Stand behind the centre of the car, and have someone else drive away from you along a straight, uncrowned road. A car that travels a little crab-wise may have suffered accident damage, including a bent frame, and should be rejected at this time; check also for bent or wobbly wheels.

19. Now take some fairly sharp left and right corners. The steering shouldn't have excessive play, and must not bind. Power steering shouldn't be "lumpy," or become stiff and lose its effort-reducing assist if turned rapidly.

20. See that the car's tyres are evenly inflated. Then, on a straight, uncrowned road, where there is no side wind, place the car on a straight course and let go of the steering wheel. A consistent tendency of the car to drift or run off course to either side usually is caused by a front suspension out of adjustment or out of line, or by a bent frame.

21. Pick a broad road with a good surface and be sure there's no following traffic. Make several moderate-speed stops. Brake harder each time. The stops should be straight and smooth—no swerving, grab or chatter of the brakes. The brake pedal should remain well above the floor and feel solid, not spongy. Misbehaviour may indicate a need for major adjustment, new linings or even refacing or replacing the brake drums.

22. Find a downgrade of some length, and traverse it with your foot off the accelerator. (If there are no hills around, decelerate from 50 m.p.h. to about 15, but without braking.) Then step hard on the accelerator and look behind for a puff, or a cloud, of blue exhaust smoke, a reliable warning that new piston rings soon must be installed.

23. Only a short ride over a really rough road will suffice to show up rattles and squeaks that

will need attention. In addition, check for jerky or uncertain steering and looseness of the car's whole front end. Remedying the latter is costly.

24. If it can be arranged, drive the car long enough to find out if it is going to overheat. A long, slow uphill pull or a heavy dose of slow-moving traffic is most likely to demonstrate the fault—and, of course, more likely to do so on a hot day. If you can trace the overheating to the radiator, remember that the cost of a new one is substantial.

The Shop Tests

Even though a car you are considering has passed both the On-the-Lot Tests and the Driving Tests, there's still a lot more which can be found out by having a mechanic make the Shop Tests which follow. He may suggest additional ones, as well. Obviously, the mechanic you choose for the Shop Tests shouldn't be connected with the dealer from whom you plan to buy. He should make the tests in his own shop.

25. The condition of the engine's valves and, in less degree, of its piston rings, can be learned by taking the compression pressure of each cylinder by means of a compression-testing gauge.

26. Similarly, proper interpretation of a vacuum gauge used by a competent mechanic gives vital information about the valves and their guides. If applied to the radiator draincock, the vacuum gauge will give important data on the condition of the radiator.

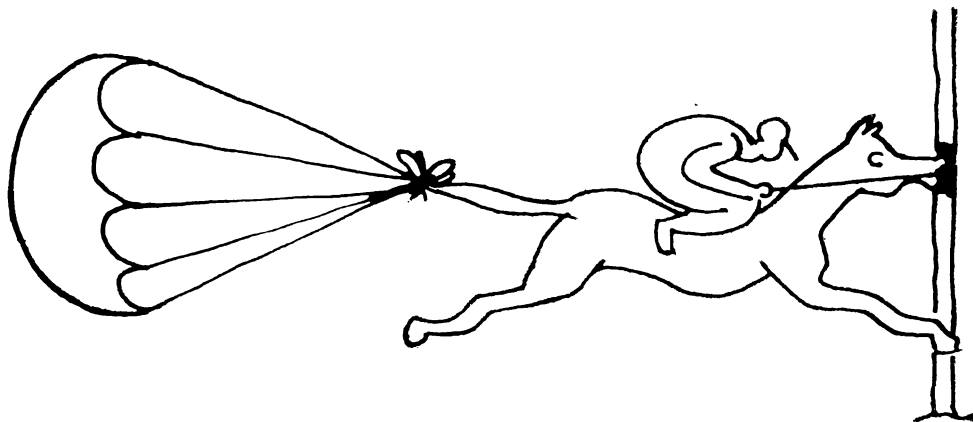
27. A third test, that any mechanic will be in favour of, is to remove a front wheel and brake drum. Whether the latter is scored and needs reconditioning, what shape the brake linings are in, whether the hydraulic-brake cylinders are leaking, or the condition of the front-wheel bearings—all can be noted, and quickly, by an alert mechanic.

28. With the car raised on a lift, the mechanic can look for grease leakage onto wheels and tyres from worn-out or defective grease seals. Mufflers can be checked for gas leakage and rusting out. He also may study the chassis frame and suspension parts for indications of collision repairs—welds, heated areas, or bent and straightened parts, etc. If he finds them, you can with good reason reject the car.

If all three series of tests are intelligently performed, you will get as complete a picture of your potential used-car purchase as can be expected from a modest outlay of time and money.

IT'S 'A MUG'S GAME

The Odds Are Always Against the Gambler



Serious gamblers seldom, if ever, admit that they gamble. There has never been a successful gambler who has not believed that his success (temporary though such success usually is) has been the result of skilful conduct on his own part; and there has never been a ruined gambler (and there have been many thousands of them) who has not believed that when ruin overtook him he was on the very point of mastering the secret of success.

It is a great pity that virtually no successful gambler has ever recorded his method. Instead of facts, we have only a dark body of superstition similar to that surrounding the so-called sciences of numerology, astrology, and fortune-telling. A great many people still hold to beliefs that have been known to be fallacious for more than 150 years and have been proved wrong by the painful experiences of successive generations of gamblers. Nevertheless the gullible continue to fall for them. In Sydney one operator peddling "systems" offers as proof of his bona fides the fact that he has had the same address (a G.P.O. box number) for the last 12 years. If his system were as sound as he claims, he should by now have been able to purchase not only the G.P.O. itself, but the whole business centre of Sydney with his winnings. A certain weekly journal optimistically offers "Ten Sure Ways of Winning the Melbourne Cup". Most people, surely, would be quite content with merely one.

Superstitions

There are at least three dogmas in the faith of the gambler. The most important of these

is a belief in a mystic element of luck, which may or may not be favouring him (or her, though women are seldom such rash gamblers as men) at the moment. There are several rituals for wooing the fickle goddess of fortune, who will eventually return her favours to the ever-optimistic gambler. Secondly, there is the conviction that there is something to be "understood", a code to be cracked, a system to be discovered, which will carry the gambler to success. Finally there is the belief that certain objects, particularly numbers, have a special significance, some being lucky, others unlucky.

These fantasies have a long history, stretching back to primitive beliefs in oracles, soothsayers, and diviners (who cast marked sticks or pebbles to determine the will of the gods). In fact, today's rituals are identical in spirit, being nothing more nor less than attempts to draw aside the veil from the future by learning the signs.

In 1795 the mathematician Laplace was writing "It is principally at games of chance that a multitude of illusions support hope and sustain it against unfavourable chances. The majority of those who play at lotteries do not know how many chances are to their advantage and how many are contrary to them. They see only the possibility by a small stake of gaining a considerable sum, and the projects which their imagination brings forth exaggerate to their eyes the probability of obtaining it. . . .

"All would be without doubt surprised by the immense number of stakes lost if they could know of them; but one takes care on the contrary

to give to the winnings a great publicity, which becomes a new cause of excitement for this funereal play. . . The opinion that man has long been placed in the centre of the universe, considering himself the special object of the cares of nature, leads each individual to make himself the centre of a more or less extended sphere and to believe that hazard has preference for him. Sustained by this belief, players often risk considerable sums at games, when they know that the chances are unfavourable."

The great protector of these illusions is one-eyedness. The gambler holds the theory that seven is lucky, and by gloating over his wins on seven and explaining away his losses, he manages to retain his belief in the number. Of course in lotteries with 100,000 tickets seven *is* a lucky number, because on the average four out of every ten winning tickets contain at least one seven. But then the same is true of all the other numbers from 0 to 9.

Roulette and Two Up

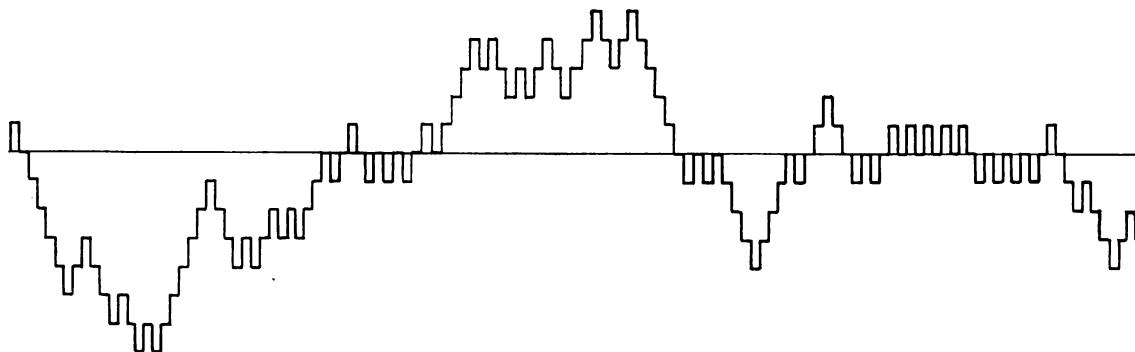
One of the oldest illusions takes the form of betting on red because black has had an unbroken run of successes, or vice-versa. You can easily check on the falsity of this system by a few simple trials. Provide yourself with the list of 1000 five-pound prizes in the latest lottery. If you treat all even numbers as equivalent to red on the roulette wheel and all odds as equivalent to black, then by running down the list of numbers you will get the equivalent of 1000 spins of a roulette wheel.

Suppose you decide that a run of six red (or six black) calls for a bet on a change to black (or red). Thus after a run of numbers ending in evens, say, 4, 2, 2, 6, 0, 8, you must bet that the next number will end in an odd digit: 1, 3, 5,

7, or 9. An odd number following a run of six evens counts as a win, a further even as a loss. After a bet, you must start counting runs again from scratch. The odds against a run of at least six are 63 to 1, so out of your 1000 numbers about 15 runs of six reds and 15 runs of six blacks should show up. It will be most surprising if, taken over the whole 30 bets, you do not balance gains and losses to within about three bets either way.

This particular fallacy is deep-rooted. There are good theoretical arguments against it, but a practical demonstration like the above is more convincing to the ordinary man. Laplace mentions the fallacy in this form: "I have seen men, ardently desirous of having a son, who could learn only with anxiety of the births of boys in the month when they are expected to become fathers. Imagining that the ratio of births of boys to those of girls ought to be the same at the end of each month, they judged that the boys already born would render more probable the births next of girls."

As a further jolt to any remaining illusions about the balancing of odds and evens, try the following little experiment. Take a sheet of ordinary ruled writing paper and draw a line across it halfway down the sheet, following one of the printed lines. This forms your reference line. Take your list of 1000 five-pound prizes again and this time, starting at the left-hand end of your ruled line, move your pencil up one line for an even number and down one line for an odd. Your pencil should also move slightly to the right (say about $\frac{1}{8}$ ") at the same time as you run it up or down. The position of your pencil at the end of a move is the starting point for the move required by the next number.



This chart was drawn as suggested in the text, using lottery results, the first that came to hand. It shows how a totally ineffective betting system can give a trend over a relatively long period. A trend may occur at any time and is as likely to be in one direction as the other.

In five minutes you should have used up some 200 prize numbers and your zig-zag line will have crossed the reference line 15 or so times, reaching to 10 or 12 lines above and below the reference line at its farthest points. Continue as long as you like, using the whole 1000 if you have time. Now count up the number of steps between each successive crossing of or meeting with the reference line. All these numbers must be even and should look like this : 2, 34, 2, 2, 2, 2, 2, 26, etc. (actual counts from the figure shown). Just what do these numbers mean? They show how long you can go with a winning or losing run. Thus, the first run of two is a winning run (during which you are continually winning), the next run of thirty four was a losing one, followed by a losing two, then a winning two, and so on. Here is the real reason why systems seem to work for long stretches, and then begin to fail. The point of the experiment is to show just how long winning and losing stretches can be without the system really working. In the long run the wins will balance the losses, but sooner or later a bad run of losses must take you right off the bottom of the sheet of paper, which may be taken to represent the extent of the money you are able to gamble with.

Lotteries

In five Australian States there are government lotteries, each of which returns about 65 per cent of takings to the investors as prizes. Queensland's Golden Casket being typical, we quote the 1954-1955 figures for 184 drawings :

Prizes	£3,907,000 (64%)
Hospitals	£1,530,000 (25%)
Ticket Sellers' Commissions	£266,000
Wages	£54,000
Working Expenses	£52,000
Stamp Duty	£306,000
Total Income ..	£6,115,000

For each ordinary drawing, 100,000 tickets are sold at 5/6d., the first prize being £6,000. Clearly the average return from a ticket bought is 64 per cent of 5/6d., that is, 3/6d. This low value does not prevent some astounding things from happening. *The Australian Encyclopaedia* records that one man, a curio dealer, has won six firsts and another, a secretary of an institution, has won five firsts. Both of these investors habitually bought large blocks or sequences of tickets ; but of course others who have followed the same system have won little or nothing at all.

Suppose you buy one 5/6d. Casket ticket every week for 50 years, in all, say, 2,500. The odds would be 39 to one against your hitting the jackpot. Even if you invested the whole £687/10/- in the one lottery, you would not improve your chances significantly.

Just to make sure, you could buy 40 tickets a week, 100,000 in all ; it would then be about 27 to 10 odds on of getting at least one jackpot. Of course, if you spent the whole £27,500 on the one lottery, you would win **not** only first prize but a total of £17,550—i.e., you would get back your full 13/- in the £.

Many people hold that numbers below 10,000 are at a disadvantage. They are—there are only 10,000 of them, compared with 89,999 above 10,000. But if you count up the number of £5 prize-winners in the 100 groups between 0-999 and 99,000-99,999 you are likely to find (as we did) something like this : five groups with only four numbers in them, five with five, four with six, three with seven, four with eight, and so on, where on the average you would expect 10 per group. To find five groups with only four numbers in them may seem a little strange ; but over the groups with four to eight numbers in them we found a total of 31 numbers. On a statistical average one would expect 32, which is very close. So, while individual drawings show startling anomalies, these smooth out over many drawings, so that on average you will lose 2/- on every 5/6d. ticket.

Horse Racing

Compared with horse racing, lottery turnover is trifling. For 1958 money invested in State lotteries totalled £32 million, while totalizator betting throughout Australia amounted to £34 million and on-course bookmakers took £274 million. Thus officially recognized race betting came to £308 million for 1958—a staggering total. For that year there were approximately 3½ million employed people in Australia—working out at £85 invested per worker. But what about S.P. betting?

None of the several Royal Commissions on off-course betting in Australia has been able to do more than guess roughly at the money involved. The 1959 Victorian Commissioner gave as a conservative estimate for the State £50 million for street betting and £112 million for telephone betting. Some of the largest operators (retired) admitted annual turnovers of £1½ to £2½ million, using 7-10 telephones.

As legal bookmakers took only £64½ million that year, S.P. operations seem to have attracted 2½ times the money paid on course. Using this ratio as a rough guide for all States, the grand total reaches £1,026 million, practically £300 per annum per employed person—almost £6 per week. In comparison, the £346 million which the Taxation Department removed from the public's pockets during the same year seems quite small fry.

The Commonwealth Year Book lists as the major manufacturing industries Metals and Machinery (output £1,433 million) and Chemicals (output £405 million). Gambling appears, therefore, to be second only to Metals and Machinery (including the motor trade) and is 2½ times the volume of its nearest competitor, Chemicals (which includes dyes, explosives, paints, oils, and grease).

How much of this fantastic total goes into bookmakers' pockets is impossible to determine. Totalizators extract between 12 and 15 per cent before payouts; although bookmakers sometimes give better odds than the tote, they make up on other horses and it seems unlikely that they return much more to the punter than the tote does. S.P. men probably return a lot less. Indeed the Royal Commissioner in Western Australia in 1948 reported that he was able to examine the books of one S.P. man and found that during three successive meetings a total of £5,400 was taken from 3,000 bets, of which £1,400 (or more than 25 per cent) was not returned to punters. The Commissioner commented drily, "Truly, if colloquially, it is described as a 'mug's game'."

There are probably almost as many different systems of betting as there are punters. Some bet on barrier positions, No. 7 frequently being favoured; some bet on saddle-cloth numbers, again mostly on 7; some judge by the past four races in which the horse has run; others bet on the third from the top weight carried; some bet according to a particular tipster, while others claim that the tipsters are paid by the bookmakers to divert attention from the horses fixed to win. Statistics over a number of race meetings lead to the inevitable conclusion that all these systems lead to an eventual ruin (of the punter, not the bookmaker).

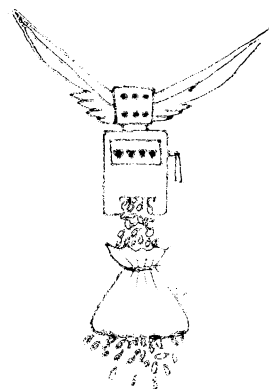
"Fair game" has been defined as "what the punter thinks he gets from the bookmaker, and what the bookmaker thinks of the punter". To get the record straight, try being a book-

maker yourself for a few minutes. Suppose your family is going to increase by one unit in the near future and you want to make some money on it. You bet one of your friends five to four against it being a boy, and a second friend five to four against it being a girl. You thus collect £5 from each friend, undertaking to pay out £9 to whichever one is right. In any event you make £1. This, on a more elaborate scale, is how the bookie works, making sure he is covered for any eventuality. It must be one of the easiest ways of making money in the world.

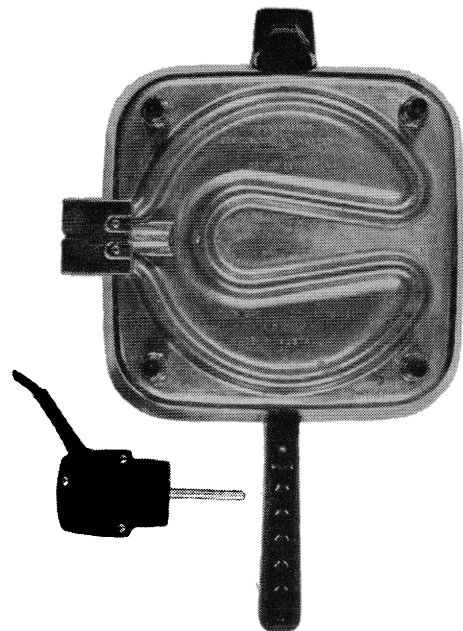
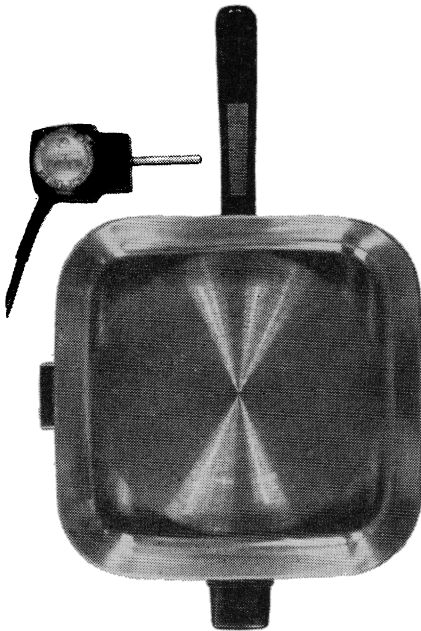
Many racing men make a close study of form and bet only after delicate judgement on the prospects for the day. Let us imagine that we control an electronic brain. We feed into it masses of information: names of horses, their recent performances, training times, diets, pulse rates, pedigrees; names of jockeys, trainers, and owners; tips from all sources; track conditions, wind, barrier positions, weight carried, saddle-cloth number; in fact, every imaginable detail that is remotely relevant. We set the brain working and it gives us a second by second run of the race, right to the photo-finish positions and the correct weight. If even one item of vital information were omitted, or wrong, the whole course of the race would be altered. Just how much "inside information" would we require to improve on the electronic brain? And we have also to remember that the handicappers have already done their best, on their own inside information, to give the rank outsider as good a chance as the favourite.

ACA Recommends :

Put your money on ACA, and invest in the Christmas Gift Membership Scheme.



THE HOTPOINT ELECTRIC FRYING PAN



Hotpoint
£14.12.6

Cat. No. 68059G1

With ventilated metal lid

TABLE
Measurement Tests

1. Weight	4 lb. 11 oz.
2. Frying area (square inches)	99
3. Cooking height (inches)	5½
4. Electrical insulation resistance (megohms)	3.6
5. Power Loading (volt-amps) .. Set temperature for heating tests: 350°F.	1104
6. Temperature at centre of pan after one hour	399°F.
7. Temperature differential of ther- mostat	49°F.
8. Temperature reached when first switched on	531°F.
9. Temperature variation over frying area	65°F.
10. Time to reach set temperature ..	7 mins 10 secs.
11. Average ON-OFF cycle time ..	2 mins 15 secs.
12. Table top temperature (under pan)	120°F.

This report details the results of ACA's examination of the HOTPOINT frying pan, which was not on sale when we previously tested electric frypans.

The tests and measurements made follow exactly the same pattern as those given in *Choice* No. 2 in the main article on Electric Frying Pans. This sheet may be cut out and pasted in with that article, if desired.

It will be seen from the table that this is a larger pan than any of the other three (although the SUNBEAM is made in larger sizes, only the small one was tested). The HOTPOINT is only made in the one size. Because it is larger than the others tested it is a little heavier also.

The lid supplied was a deeply domed metal lid complete with an adjustable slide ventilator to regulate the loss of steam. The lid fitted well and is quite well finished off. The cooking height is considerable—5½ inches—but again it is possible to buy deeper lids for the SUNBEAM.

Electrical Insulation

This gave a value of 3.6 megohms which is not as good as the other frying pans ACA tested but it is quite acceptable and should tend to get higher as time goes on, with the pan in use, rather than to fall.

Power Loading

This value was also close to the figure stamped on the pan—1200 watts—and was quite satisfactory.

General Design

The HOTPOINT has a plug-in thermostat generally along the lines of the HECLA which we examined earlier. The difference in this case being that this unit plugs into a socket on the right-hand side under the pan. This is a rather more convenient arrangement, since the control knob is more easily visible.

Because the HOTPOINT uses this plug-in thermostat, or “Cookastat” as they have named it, the heating behaviour of the pan is not as good as ACA has found for the designs with a permanently fitted thermostat. The figures given in the table show a very considerable overshoot (item 8) when the pan is first switched on, a rather large thermostat differential (item 7), and a rather long time cycle both before the first switch off (item 10) and for each ON-OFF cycle (item 11).

The legs on the pan are rather short so that the table top temperature was higher than the MORPHY-RICHARDS but still was unlikely to affect a polished dining table.

Temperature variation over the frying area was rather higher than with MORPHY-RICHARDS or SUNBEAM and this might easily be due to the fact that this pan is larger in size, but the heater layout is similar to that with smaller pans.

Design Features

The thermostat knob is rather deep and the mark to which it is to be set is not very near to the figures, so that accurate setting for ACA's tests was difficult whereas this does not matter as much to the housewife. The figures on the knob match up with the figures given for cooking various different foods on the plaque on the handle.

The HOTPOINT pan has the same advantage as the HECLA, in that it can be immersed in water and is therefore easier to clean than the MORPHY-RICHARDS or SUNBEAM.

The pilot light is poor. It is arranged underneath the knob so that the figures near the setting mark are illuminated. It is difficult to see, but there is another feature which ACA did not like which is that it is connected in reverse. This means that it lights up when the pan element is switched OFF. This also means that when the pan is switched on there is no indication that current is being supplied to the heater. This arrangement is unusual and would require the user to become accustomed to it.

The instruction book is nicely produced, but the copy ACA received with the pan had six pasted-in modifications which is surely not very good in a new production.

Conclusions

This pan is the fourth available to the Australian housewife. It has the advantage of the removable thermostat, but this again brings with it less efficient control.

ACA does not consider that this frying pan merits a change in the previous recommendations.

ACA still recommends :

First : SUNBEAM Electric Automatic Frypan

Second : MORPHY-RICHARDS Automatic Electric Frypan.

A C A

BRANCH COMMITTEES

Western Australian and Victorian members will be interested to know the composition of their Branch Committees, which are now official committees of the Council:

Western Australia (*Box T1641, G.P.O., Perth*)

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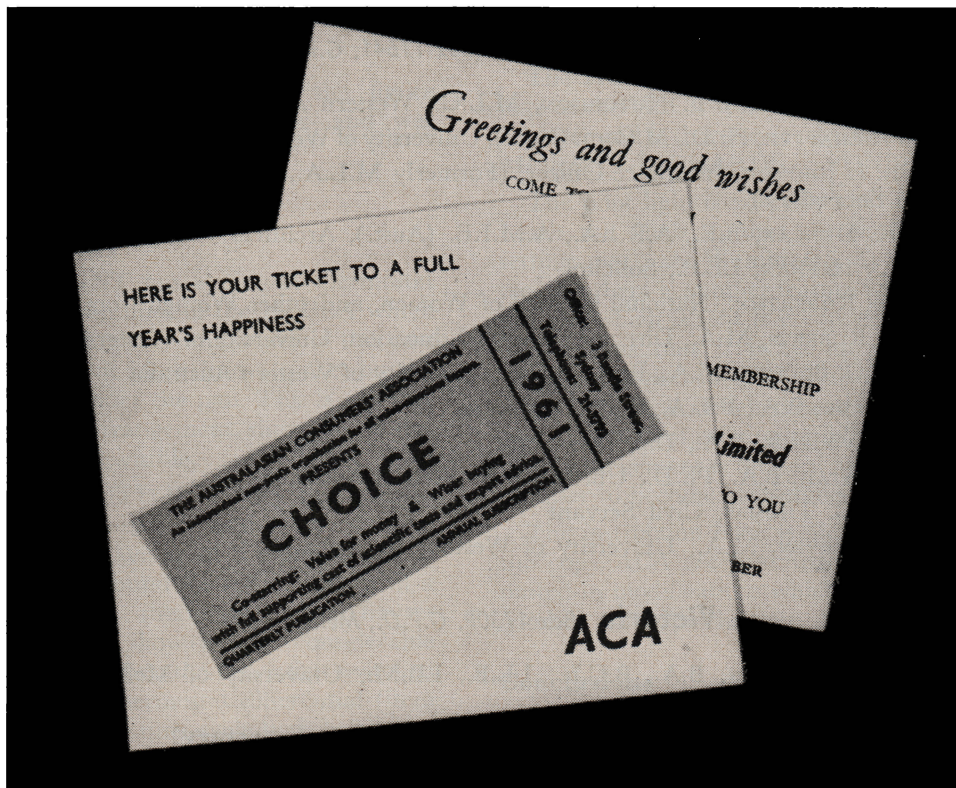
Victoria (*Box 1730P, G.P.O., Melbourne*)

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South Australia (*Box 1040J, G.P.O. Adelaide*)

In South Australia an Inaugural Committee is functioning under the chairmanship of Dr. Derek Van Abbé, M.A., Ph.D., University of Adelaide.

A.C.A. Gift Membership Card



This is what the Gift Membership Card looks like. The facsimile theatre ticket will be red and the card white with blue lettering. It will be mailed early in December to all those whose names and addresses you have sent us on Christmas Gift Application Forms.

Inside the card will be greetings from you to your friends, together with an explanation that you have made them members of ACA for 1961 and that they will be receiving *Choice* regularly.

It is still not too late to give this unusual present for Christmas. If you use the form provided inside this copy of *Choice* and send it to us at once with your remittance, we will get the cards to your friends for Christmas.

